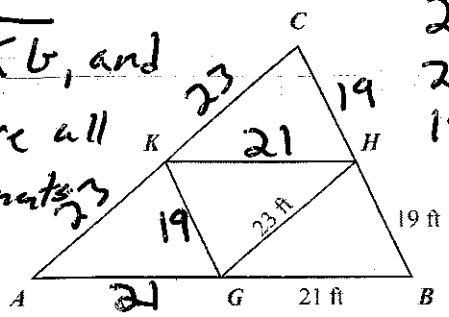
Name: _____ Class: _____ Date: _____ ID: A

Geometry B Practice Final Exam

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. You install fencing around your large triangular garden. Then, you divide it into four small triangular gardens by connecting the midpoints of each side of the triangle with fencing. How many feet of fencing do you need?



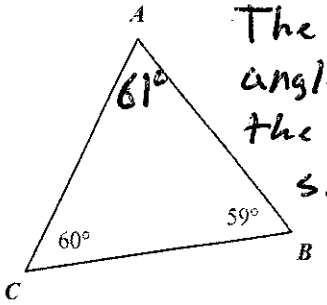
$\overline{KH}$, $\overline{KG}$, and $\overline{HG}$ are all midsegments

23 × 3 = 69
21 × 3 = 63
19 × 3 = 57
189

a. 195 ft
b. 189 ft
c. 252 ft
d. 126 ft

Find the perimeter of △ABC + △KHG

2. List the sides of $\triangle ABC$ from shortest to longest.



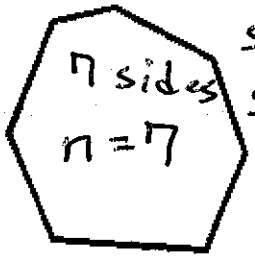
180 − 60 − 59 = 61

The larger the angle, the longer the opposite side.

a. $\overline{AC}, \overline{CB}, \overline{AB}$
b. $\overline{CB}, \overline{AB}, \overline{AC}$
c. $\overline{CB}, \overline{AC}, \overline{AB}$
d. $\overline{AC}, \overline{AB}, \overline{CB}$

∠B is the smallest angle, therefore $\overline{AC}$ is the shortest side.

3. Find the sum of the measures of the interior angles of the given figure.



S = 180(n − 2)
S = 180(7 − 2)
S = 180(5)
S = 900°

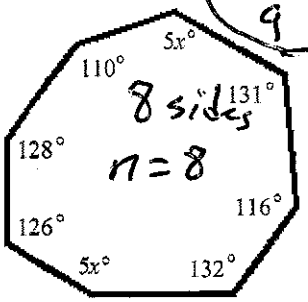
a. 1620°
b. 1260°
c. 1080°
d. 900°

4. The sum of the measures of the interior angles of a polygon is 1260°. Classify the polygon by the number of sides.

a. decagon
b. 11-gon
c. heptagon
d. nonagon

S = 180(n − 2)
$\frac{1260}{180} = \frac{180(n-2)}{180}$

5. Find the value of x.



7 = n − 2
9 = n

S = 180(8 − 2)
S = 180(6)
S = 1080

a. about 51.7
b. about 15.7
c. about 69.7
d. about 33.7

5x + 5x = 10x

110 + 128 + 126 + 132 + 116 + 131 = 743

10x + 743 = 1080
−743 −743
10x = 337
$\frac{10x}{10} = \frac{337}{10}$
x = 33.7

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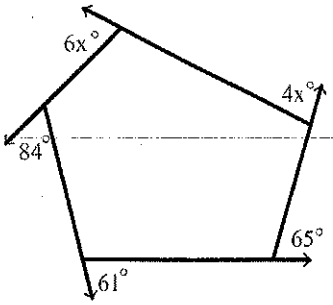
6. Find the value of x.

Sum of the exterior angles always = 360°



$10x + 210 = 360$

$-210 \quad -210$

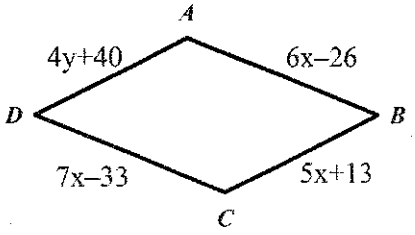
$\frac{10x}{10} = \frac{150}{10}$

$x = 15$

a. 15
b. 33
c. 75
d. 3

7. For what values of x and y is quadrilateral $ABCD$ a parallelogram?

If ABCD is a parallelogram, then the opposite sides are ≅.



a. $x = 27, y = 2$
b. $x = 7, y = 27$
c. $x = 7, y = 2$
d. $x = 59, y = 67$

$7x - 33 = 6x - 26$

$+33 \quad +33$

$7x = 6x + 7$

$-6x \quad -6x$

$x = 7$

$5x + 13 = 4y + 40$

$5(7) + 13 = 4y + 40$

$35 + 13 = 4y + 40$

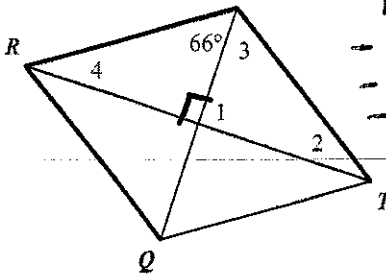
$48 = 4y + 40$

$-40 \quad -40$

$\frac{8}{4} = \frac{4y}{4}$

$2 = y$

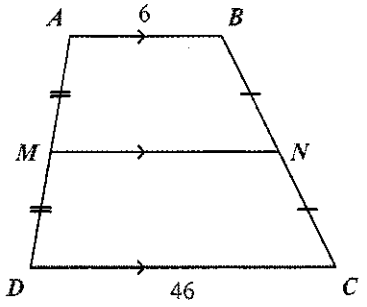
8. QRST is a rhombus. The diagonals are ⊥ and bisect the vertices.



180
- 90
- 66
24 = m∠4

a. $m\angle 1 = 132°, m\angle 2 = 24°, m\angle 3 = 24°, m\angle 4 = 24°$
b. $m\angle 1 = 24°, m\angle 2 = 78°, m\angle 3 = 78°, m\angle 4 = 78°$
c. $m\angle 1 = 90°, m\angle 2 = 24°, m\angle 3 = 24°, m\angle 4 = 24°$
d. $m\angle 1 = 90°, m\angle 2 = 24°, m\angle 3 = 66°, m\angle 4 = 24°$

9. Find the length of the midsegment of the trapezoid.

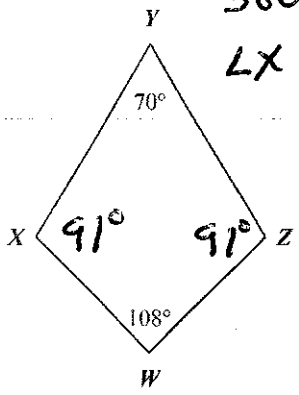


$MN = \frac{6 + 46}{2}$

$MN = \frac{52}{2} = 26$

a. 26
b. 49
c. 20
d. 29

10. A scenic overlook which extends over a ravine is shaped like a kite.



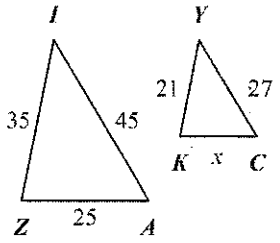
360° in a Kite.
$\angle X \cong \angle Z$

360
−108
−70
182

$\frac{182}{2} = 91$

Find $m\angle X$.
a. 70°
b. 182°
c. 91°
d. 108°

11. In the diagram, $\triangle ZIA \sim \triangle KYC$. Find the value of x.



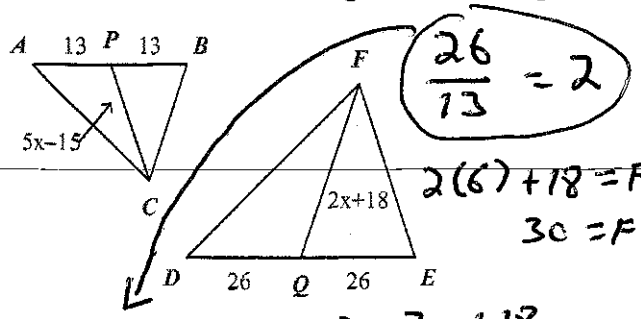
a. 7
b. 11
c. 15
d. 25

$\frac{21}{35} = \frac{x}{25}$

$\frac{35x}{35} = \frac{525}{35}$

$x = 15$

12. $\triangle ABC \sim \triangle DEF$. Find the length of median $\overline{FQ}$.



$\frac{26}{13} = 2$

$2(6) + 18 = FQ$
$30 = FQ$

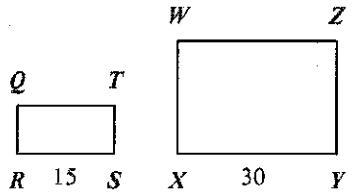
a. 40
b. 10
c. 30
d. 26

$2(5x-15) = 2x+18$
$10x - 30 = 2x + 18$
$8x = 48$
$x = 6$

13. A rectangular yard is fenced in using 333 feet of custom fence. Your friends really like the fence and decide to fence in their yard using the same fence. Their yard is similar but has a scale factor of $\frac{4}{3}$ times the size of yours, how much fence, to the nearest foot, will they have to purchase?
a. 444 feet
b. about 334 feet
c. about 477 feet
d. about 250 feet

$\frac{4}{3}(333) = 444$

14. $QRST \sim WXYZ$. The area of $WXYZ$ is given. Find the area of $QRST$.



A = 480 sq in.

$\frac{15}{30} = \frac{1}{2}$

$\left(\frac{1}{2}\right)^2 = \frac{1}{4}$

a. 32 in.^{2}
b. 465 in.^{2}
c. 240 in.^{2}
d. 120 in.^{2}

$480\left(\frac{1}{4}\right) = 120$

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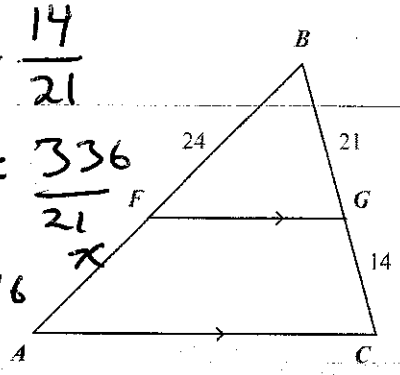
15. What is the length of $\overline{AF}$?

$\frac{x}{24} = \frac{14}{21}$

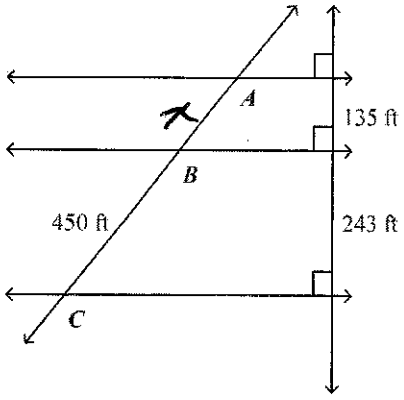
$\frac{21x}{21} = \frac{336}{21}$

$x = 16$



a. 17
b. 16
c. 14
d. 24

16. Walkers in a park have different benches where they can stop and rest. How far is it between bench "A" and bench "B"?



a. 250 feet
b. 315 feet
c. 342 feet
d. 207 feet

$\frac{x}{450} = \frac{135}{243}$

$\frac{243x}{243} = \frac{60,750}{243}$

$x = 250$

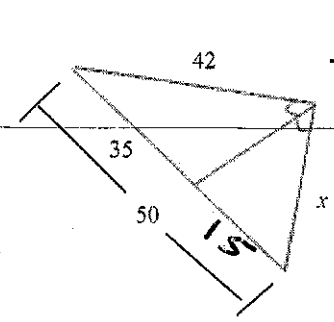
17. Find the value of x.

$\frac{x}{15} = \frac{42}{35}$

$\frac{35x}{35} = \frac{630}{35}$

$x = 18$

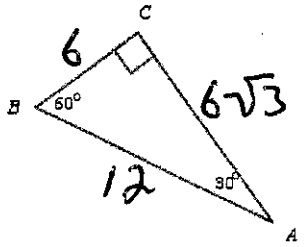
$50 - 35 = 15$



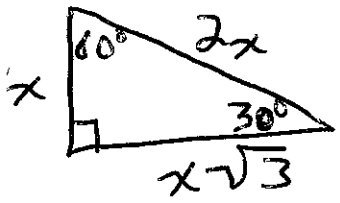
a. 30
b. 18
c. 17.3
d. 22

18. In the diagram, $AB = 12$. Find AC and BC. Write your answers in simplest form.

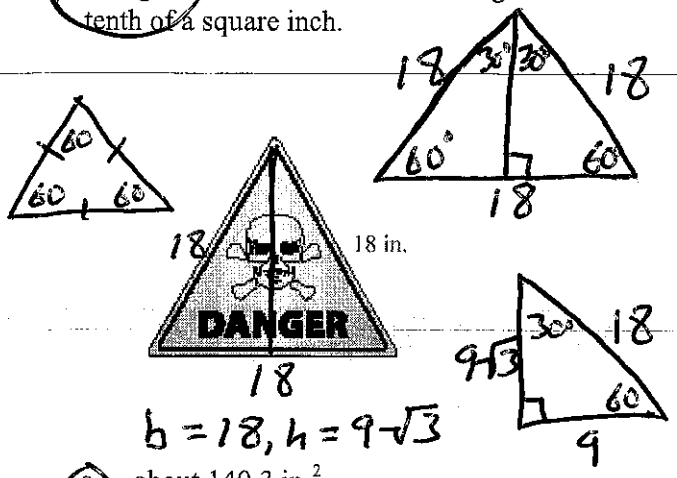
$12 \div 2 = 6$



a. $AC = 4, BC = 8$
b. $AC = 6\sqrt{3}, BC = 6$
c. $AC = 8, BC = 4$
d. $AC = 6, BC = 6\sqrt{3}$



19. A chemistry teacher makes a sign for the door to the room that contains the chemicals used in class. The danger sign is shaped like an equilateral triangle. Estimate the area of the sign to the nearest tenth of a square inch.



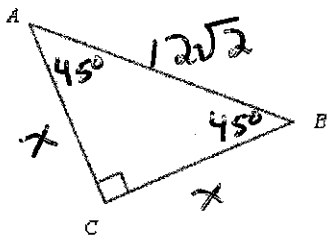
$b = 18, h = 9\sqrt{3}$

(a) about 140.3 in.^{2}
b. about 280.6 in.^{2}
c. about 54.0 in.^{2}
d. about 70.1 in.^{2}

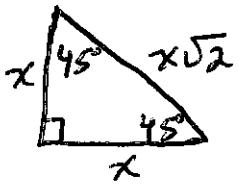
$A = \frac{1}{2}bh$
$A = \frac{1}{2}(18)(9\sqrt{3})$
$A = 140.3$

20. In the diagram, $AC = x$, $BC = x$, and $AB = 12\sqrt{2}$. Find the value of x. Write your answer in simplest form.

Since $\overline{AC} \cong \overline{BC}$, then $\angle A \cong \angle B$.



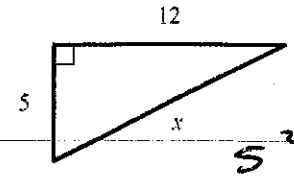
$180 - 90 = 90$
$90 \div 2 = 45$



a. $x = 24$
b. $x = 6\sqrt{2}$
(c) $x = 12$
d. $x = 24\sqrt{2}$

$x = \frac{12\sqrt{2}}{\sqrt{2}} = 12$

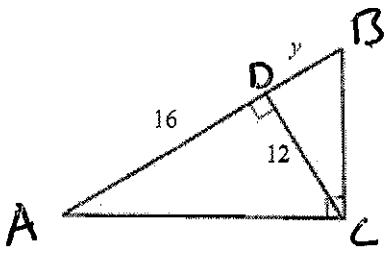
21. Find the value of x.



$5^2 + 12^2 = x^2$
$25 + 144 = x^2$
$169 = x^2$
$\sqrt{169} = \sqrt{x^2}$
$13 = x$

a. $x = 365$
(b) $x = 13$
c. $x = \sqrt{119}$
d. $x = 17$

22.



$CD^2 = AD \cdot BD$
$12^2 = 16y$
$\frac{144}{16} = \frac{16y}{16}$
$9 = y$

(a) $y = 9$
b. $y = 20$
c. $y = 96$
d. $y = 8\sqrt{3}$

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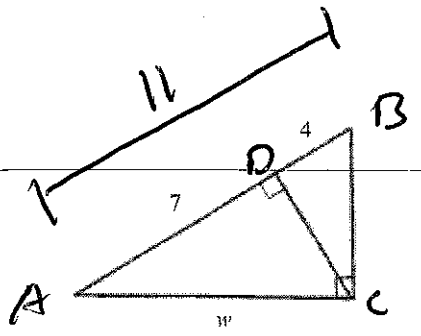
23.



$AC^2 = AD \cdot AB$

$w^2 = 7(11)$

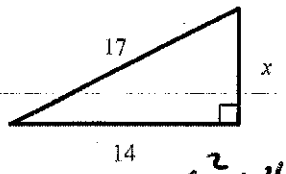
$w^2 = 77$

$\sqrt{w^2} = \sqrt{77}$

$w = \sqrt{77}$

a. $w = 2\sqrt{7}$
b. $w = 2\sqrt{11}$
c. $w = \sqrt{11}$
d. $w = \sqrt{77}$

24. Find the value of x.



$x^2 + 14^2 = 17^2$

$x^2 + 196 = 289$

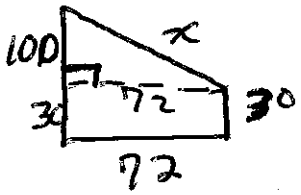
$-196 \quad -196$

$x^2 = 93$

$x = \sqrt{93}$

a. $x = 3$
b. $x = 93$
c. $x = \sqrt{93}$
d. $x = \sqrt{485}$

25. An adventure company wants to run a zip line from the top of one building that is 130 feet tall to the top of another building that is 30 feet tall. The two buildings are 72 feet apart. Estimate the length (in feet) of the zip line. Round your answer to the nearest tenth.



a. about 172.0 ft
b. about 123.2 ft
c. about 69.4 ft
d. about 100.0 ft

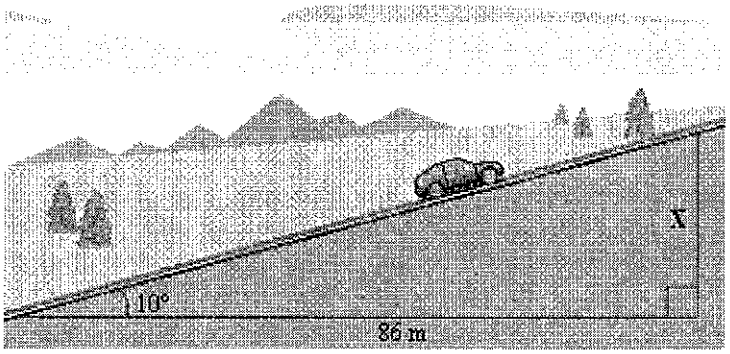
$25.\ 72^2 + 100^2 = x^2$

$5184 + 10{,}000 = x^2$

$15184 = x^2$

$123.2 = x$

26. A car is traveling along a road that makes a 10° angle with the ground. Find the elevation (x) of the car on a stretch of road that extends horizontally 86 meters. Round your answer to the nearest tenth.



Not drawn to scale

$\tan 10 = \frac{x}{86}$

$86 \tan 10 = x$

$15.2 = x$

a. about 15.2 m
b. about 487.7 m
c. about 55.8 m
d. about 132.6 m

27. $\sin W = 0.79$ ← • use calculator • degree mode

a. about 52.2°
b. about 40.7°
c. about 0.014°
d. about 37.8°

$W = \sin^{-1}(.79)$

$W = 52.2°$

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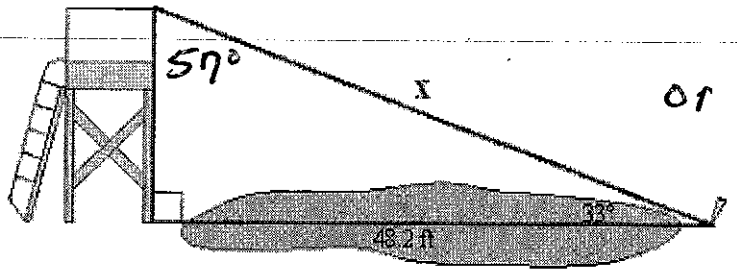
28. In an obstacle course, participants climb to the top of a tower and use a zip line to travel across a mud pit. The zip line extends from the top of a tower to a point on the ground 48.2 feet away from the base of the tower. The angle of elevation of the zip line is 33°. What is the length (x) of the zip line? Round your answer to the nearest tenth of a foot.



Not drawn to scale

$\cos 33 = \frac{48.2}{x}$ or $\sin 57 = \frac{48.2}{x}$

$\cos 33 = \frac{48.2}{x}$ $x = 57.5$

$x \cos 33 = 48.2$

$x = \frac{48.2}{\cos 33}$

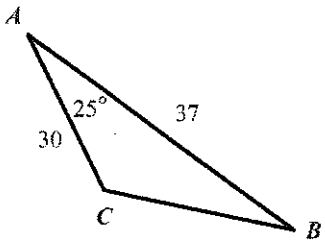
a. about 74.2 ft
b. about 31.3 ft
c. about 88.5 ft
d. about 57.5 ft

29. tan 106°
a. about 1.5706
b. about 1.5614
c. about –3.4874
d. about –1.0592

use calculator. degree mode

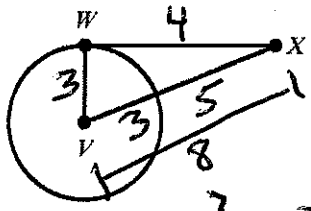
30. Find the area of the triangle. Round your answer to the nearest tenth.

Law of cosines. SKip.



a. about 503.0 units²
b. about 234.6 units²
c. about 258.8 units²
d. about 555.0 units²

31. In the diagram, $VW = 3$, $WX = 4$, and $VX = 8$. Is $\overline{WX}$ tangent to $\odot V$?



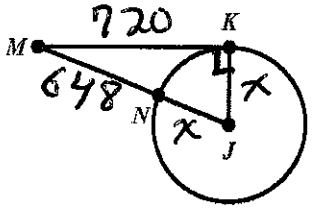
$3^2 + 4^2 \stackrel{?}{=} 8^2$

$9 + 16 = 64$

$25 \neq 64$

a. no
b. yes

32. In the diagram, point K is a point of tangency, $MK = 720$, and $MN = 648$. What is the radius of $\odot J$?



a. 76
b. 70
c. 72
d. 64

$x^2 + 720^2 = (x + 648)^2$

$x^2 + 518,400 = x^2 + 1296x +$

$-x^2 \quad -x^2 \quad 419,904$

$518,400 = 1296x + 419,904$

$-419,904 \quad -419,904$

$98,496 = 1296x$

$\frac{98496}{1296} = \frac{1296x}{1296}$

$76 = x$

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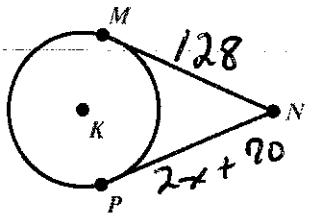
33. In the diagram, $\overline{MN}$ is tangent to $\odot K$ at M, $\overline{NP}$ is tangent to $\odot K$ at P, $MN = 128$, and $NP = 2x + 70$. Find the value of x.

$\overline{MN} \cong \overline{NP}$

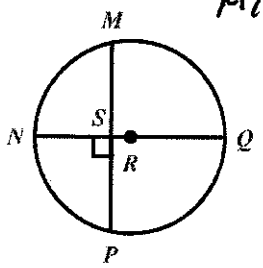


a. $x = 29$
b. $x = 99$
c. $x = -9$
d. $x = 38$

$2x + 70 = 128$ $x = 29$
$-70 \quad -70$
$\frac{2x}{2} = \frac{58}{2}$

34. In the diagram, $\overline{NQ}$ is a diameter of $\odot R$, $m\overset{\frown}{MN} = (6x + 33)°$, and $m\overset{\frown}{NP} = (5 + 10x)°$. Find $m\overset{\frown}{MP}$.

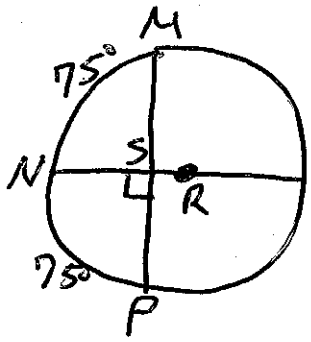
$\overset{\frown}{MN} \cong \overset{\frown}{NP}$



$6x + 33 = 5 + 10x$
$-6x \quad -6x$
$33 = 5 + 4x$
$-5 \quad -5$
$\frac{28}{4} = \frac{4x}{4}$
$7 = x$

a. $m\overset{\frown}{MP} = 150°$
b. $m\overset{\frown}{MP} = 75°$
c. $m\overset{\frown}{MP} = 92°$
d. $m\overset{\frown}{MP} = 223°$

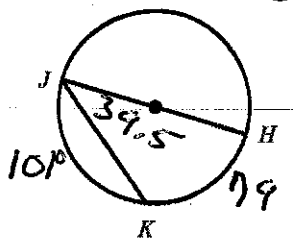
$6x + 33$
$6(7) + 33$
$42 + 33$
75



75
$+75$
$150 = m\overset{\frown}{MP}$

35. In the diagram, $m\angle J = 39.5°$. Find $m\overset{\frown}{JK}$.

$39.5 \times 2 = 79$

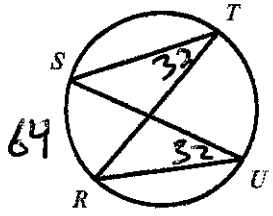


$180 - 79 = 101$

a. $m\overset{\frown}{JK} = 101°$
b. $m\overset{\frown}{JK} = 79°$
c. $m\overset{\frown}{JK} = 140.5°$
d. $m\overset{\frown}{JK} = 50.5°$

36. In the diagram, $m\angle SUR = 32°$. Find $m\overset{\frown}{RS}$ and $m\angle STR$.

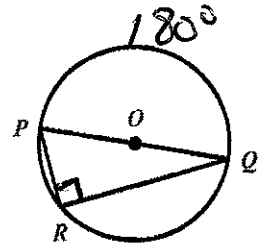
$32 \times 2 = 64$



$64 \div 2 = 32$

a. $m\overset{\frown}{RS} = 64°$, $m\angle STR = 32°$
b. $m\overset{\frown}{RS} = 64°$, $m\angle STR = 128°$
c. $m\overset{\frown}{RS} = 32°$, $m\angle STR = 64°$
d. $m\overset{\frown}{RS} = 148°$, $m\angle STR = 74°$

37. In the diagram, $m\angle QRP = 5x°$. Find the value of x.

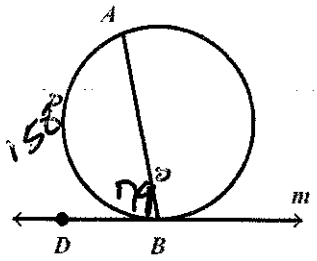


$m\angle QRP = \frac{1}{2}(180)$
$m\angle QRP = 90$

$\frac{5x}{5} = \frac{90}{5}$
$x = 18$

a. $x = 18$
b. $x = 36$
c. $x = 72$
d. $x = 12$

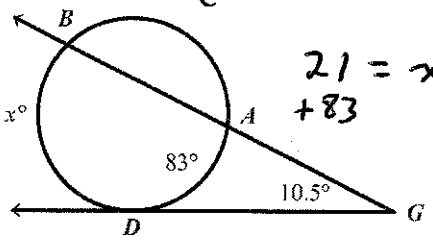
38. In the diagram, line m is tangent to the circle and $m\angle ABD = 79°$. Find $m\overset{\frown}{AB}$.



79 × 2 = 158

a. $m\overset{\frown}{AB} = 158°$
b. $m\overset{\frown}{AB} = 79°$
c. $m\overset{\frown}{AB} = 101°$
d. $m\overset{\frown}{AB} = 316°$

39.



$(2)\ 10.5 = \frac{x-83}{2}\ (2)$

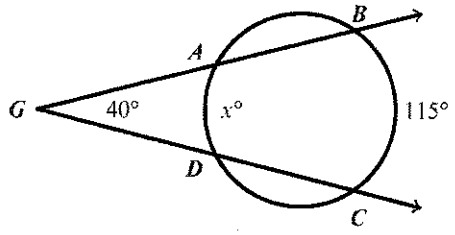
$21 = x - 83$

$+83 \quad +83$

$104 = x$

a. $x = 104$
b. $x = 93.5$
c. $x = 72.5$
d. $x = 166$

40.



a. $x = 35$
b. $x = 75$
c. $x = 27$
d. $x = 77.5$

$(2)\ 40 = \frac{115-x}{2}\ (2)$

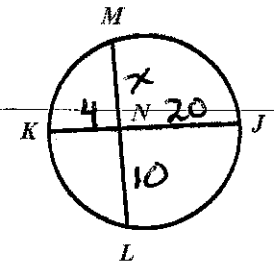
$80 = 115 - x$

$-115 \quad -115$

$(-1)\ -35 = -x\ (-1)$

$35 = x$

41. In the diagram, $KN = 4$, $JN = 20$, $LN = 10$, and $MN = x$. Find ML.



$10x = 4(20)$

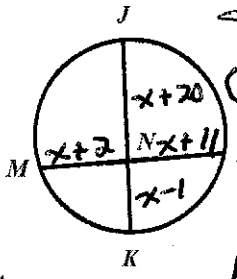
$\frac{10x}{10} = \frac{80}{10}$

$x = 8$

$ML = 8 + 10 = 18$

a. $ML = 18$
b. $ML = 8$
c. $ML = 80$
d. $ML = 24$

42. In the diagram, $KN = x - 1$, $JN = x + 20$, $LN = x + 11$, and $MN = x + 2$. Find the value of x.



$(x+2)(x+11) = (x-1)(x+20)$

$x^2 + 13x + 22 = x^2 + 19x - 20$

$-x^2 \quad -x$

$13x + 22 = 19x - 20$

$-13x \quad -13x$

$22 = 6x - 20$

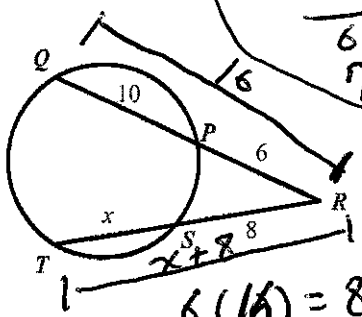
$+20 \quad +20$

$\frac{42}{6} = \frac{6x}{6}$

$7 = x$

a. $x = 7$
b. $x = 42$
c. $x = 6$
d. $x = 25$

43. Find the value of x.



$6(16) = 8(x+8)$

$96 = 8x + 64$

$-64 \quad -64$

$\frac{32}{8} = \frac{8x}{8}$

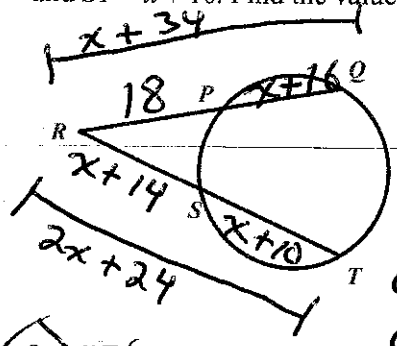
$4 = x$

a. $x = 4$
b. $x = 7.5$
c. $x = 8$
d. $x = 13.3$

Name: _____ ID: A

(x+14)(2x+24)

44. In the diagram, $RP = 18$, $PQ = x + 16$, $RS = x + 14$, and $ST = x + 10$. Find the value of x.



a. $x = 6$
b. $x = 9.5$
c. $x = 8.1$
d. $x = 10$

$18(x+34) = (x+14)\cdot(2x+24)$

$18x + 612 = 2x^2 + 52x + 336$

$0 = 2x^2 + 34x - 276$

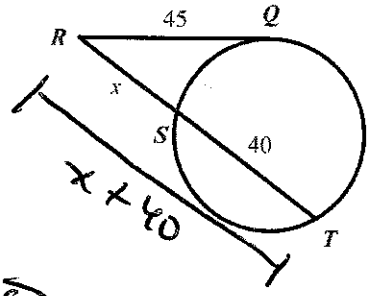
$0 = x^2 + 17x - 138$

$0 = (x+23)(x-6)$

$x+23=0 \quad x-6=0$

$x \neq -23 \quad x = 6$

45. Find RS.



a. $RS \approx 29.2$
b. $RS \approx 50.0$
c. $RS \approx 69.2$
d. $RS \approx 1.1$

$45^2 = x(x+40)$

$2025 = x^2 + 40x$

$0 = x^2 + 40x - 2025$

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \dfrac{-40 \pm \sqrt{40^2 - 4(1)(-2025)}}{2(1)}$

$x = \dfrac{-40 \pm \sqrt{1600 + 8100}}{2}$

$x = \dfrac{-40 \pm \sqrt{9700}}{2}$

$x = \dfrac{-40 + 98.5}{2}$

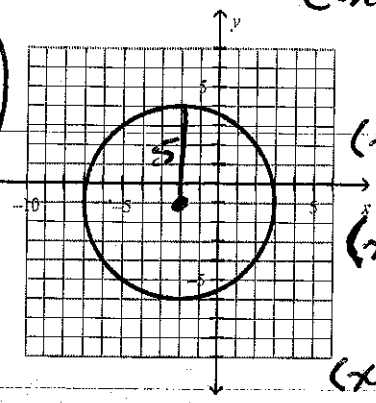
$x = \dfrac{58.5}{2}$

$x = 29.25$

$x = \dfrac{-138.5}{2}$

$x \neq -69.25$

46. Write the standard equation of the circle shown below.



Center: $(-2, -1)$

$r = 5$

$(x-h)^2 + (y-k)^2 = r^2$

$(x-(-2))^2 + (y-(-1))^2 = 5^2$

$(x+2)^2 + (y+1)^2 = 25$

a. $(x+2)^2 + (y+1)^2 = 25$
b. $(x-2)^2 + (y-1)^2 = 25$
c. $(x+2)^2 + (y+1)^2 = 5$
d. $(x+1)^2 + (y+2)^2 = 25$

47. The point $(-9, -7)$ is on a circle with center $(8, 4)$. Write the standard equation of the circle.

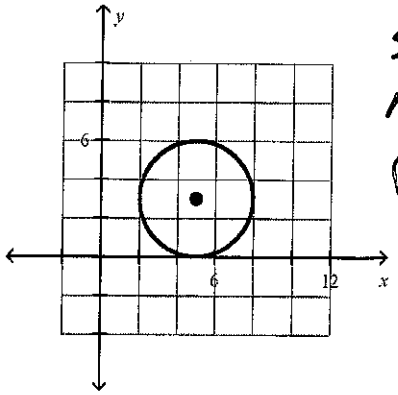
h k

a. $(x-8)^2 + (y-4)^2 = 410$
b. $(x+8)^2 + (y+4)^2 = 410$
c. $(x-4)^2 + (y-8)^2 = 410$
d. $(x-8)^2 + (y-4)^2 = \sqrt{410}$

See next page

48. The equation of a circle is $x^2 + y^2 - 10x - 6y + 25 = 0$. Find the center and the radius of the circle. Then graph the circle.

a. center: $(5, 3)$, radius: 3



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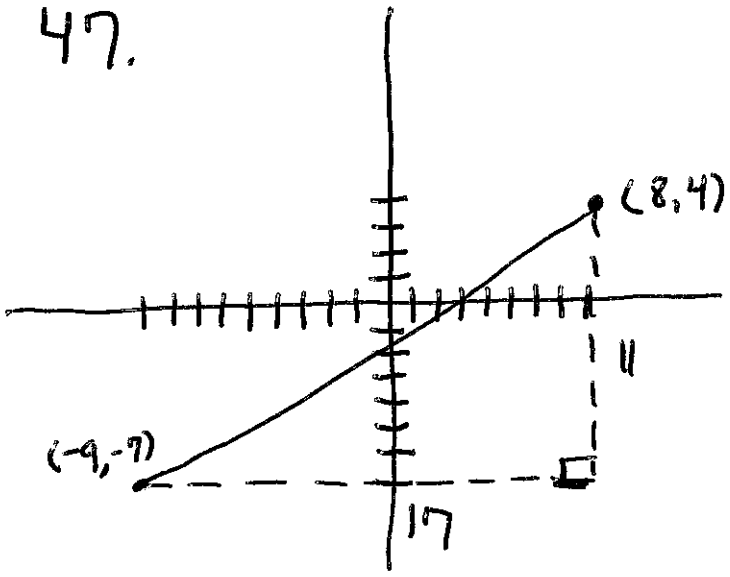
47.



The distance from (8,4) to (-9,-7) is the radius of the circle.

$11^2 + 17^2 = r^2$

$121 + 289 = r^2$

$410 = r^2$

$\sqrt{410} = \sqrt{r^2}$

$\sqrt{410} = r$

$(x-h)^2 + (y-k)^2 = r^2$

$(x-8)^2 + (y-4)^2 = 410$

48.

$x^2 + y^2 - 10x - 6y + 25 = 0$

$(x^2 - 10x) + (y^2 - 6y) = -25$

$(x^2 - 10x + 25) + (y^2 - 6y + 9) = -25 + 25 + 9$

$(x-5)^2 + (y-3)^2 = 9$

Center: (5,3)

$r = 3 \qquad \sqrt{9} = 3$

$\frac{10}{2} = 5 \qquad 5^2 = 25$

$\frac{6}{2} = 3 \qquad 3^2 = 9$

$(x^2 - 10x + 25)$

$(x-5)(x-5)$

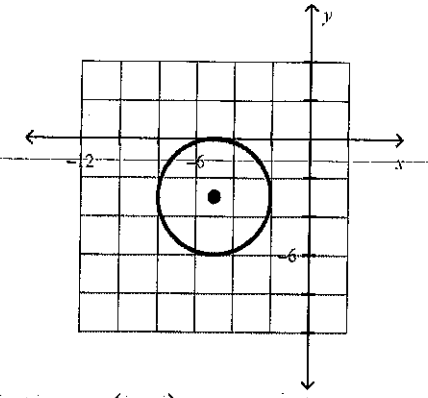
$(x-5)^2$

$(y^2 - 6y + 9)$

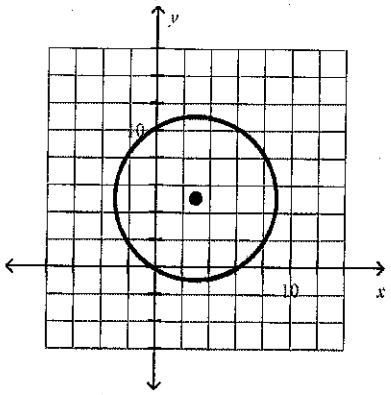
$(y-3)(y-3)$

$(y-3)^2$

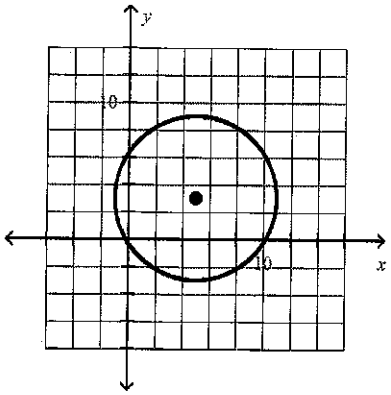
b. center: $(-5, -3)$, radius: 3



c. center: $(3, 5)$, radius: 6



d. center: $(5, 3)$, radius: 6



49. The circumference of a circle is 34 centimeters. Find the radius of this circle.
    a. about 213.63 cm
    b. about 10.82 cm
    c. about 5.41 cm
    d. about 106.81 cm

$C = 2\pi r$

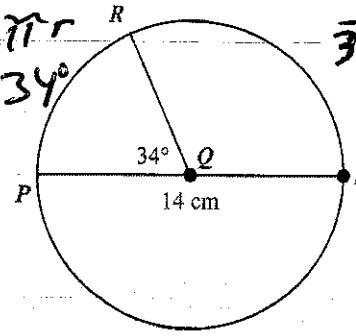
$34 = 2\pi r$

$\frac{34}{2\pi} = \frac{2\pi r}{2\pi}$

$5.4 = r$

50. The diameter of $\odot Q$ is 14 centimeters. Find the arc length of $\overset{\frown}{PR}$. $r = 7$

$\frac{m\overset{\frown}{PR}}{360} \cdot 2\pi r$



$\frac{34}{360} \cdot 2\pi(7)$

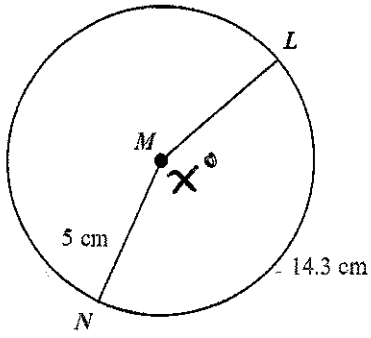
$\frac{34}{360} \cdot 14\pi$

$\frac{476\pi}{360}$

4.15

    a. about 476.00 cm
    b. about 148.24 cm
    c. about 4.15 cm
    d. about 8.31 cm

51. Find $m\angle LMN$.



$14.3 = \frac{x}{360} \cdot 2\pi(5)$

$14.3 = \frac{x}{360} \cdot 10\pi$

$\frac{14.3}{(10\pi)} = \frac{\frac{x}{360} \cdot 10\pi}{10\pi}$

$(360).455 = \frac{x}{360}(360)$

$163.9 = x$

    a. about 791°
    b. about 5°
    c. about 126°
    d. about 164°

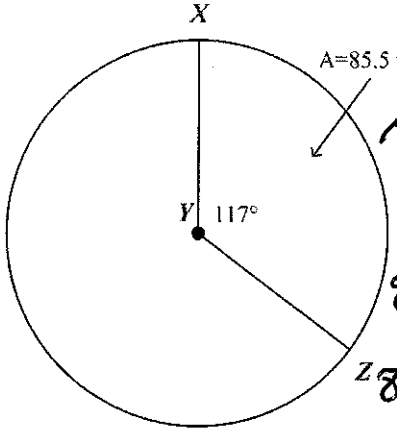
Name: _____ ID: A

52. Two identical gears with a 8 centimeter radius are to be connected by a chain. The distance between the centers of the two gears is 44 centimeters. What length of chain is required to wrap around both gears and form a complete loop?
a. about 113.13 cm
b. about 104.00 cm
c. about 138.27 cm
d. about 94.27 cm

53. Convert 186° to radians.
a. $\frac{31\pi}{30}$ rad
b. $\frac{31\pi}{60}$ rad
c. $\frac{31\pi}{15}$ rad
d. 31π rad

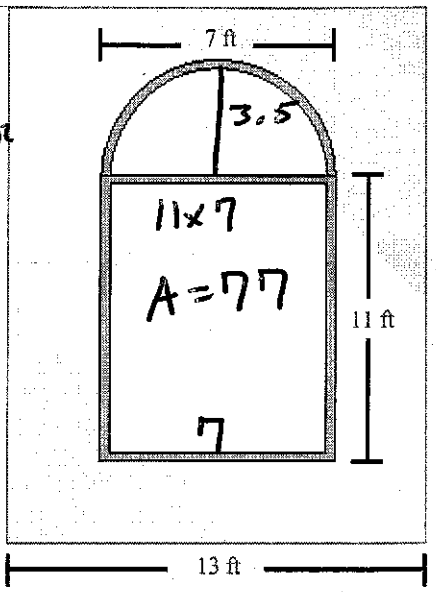
54. Calculate the area of a circle with a diameter of 10.8 centimeters.
a. about 135.72 cm^2
b. about 67.86 cm^2
c. about 366.44 cm^2
d. about 91.61 cm^2

55. Find the area of $\odot Y$.



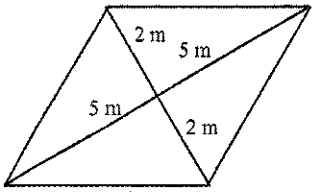
a. about 263.08 m^2
b. about 2375.83 m^2
c. about 826.48 m^2
d. about 1547.65 m^2

56. Wallpaper is to be applied to the wall surrounding a Norman window (a shape made by placing a semicircle on top of a rectangle). How many square feet of wallpaper are required to cover the wall surrounding the window?



a. about 131.00 ft^2
b. about 96.24 ft^2
c. about 111.76 ft^2
d. about 147.52 ft^2

57. Find the area of the rhombus.



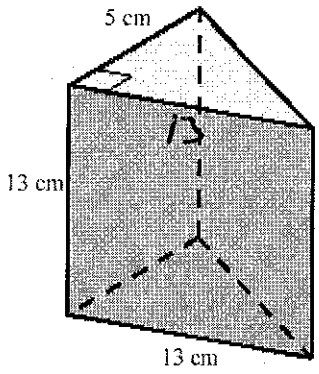
a. 10 m^2
b. 29 m^2
c. 20 m^2
d. 40 m^2

Name: _____ ID: A

58. You need to create a hole 11.7 inches deep for a post that is in the shape of a cylinder with a radius of 7.2 inches. You will be using a drill bit that rotates around a vertical axis, positioned such that the axis is attached to the side of a rotating polygon. What characteristics should the drill bit have to create the desired shape?
    a. right triangle with vertical height 7.2 inches and a horizontal base 11.7 inches
    b. right triangle with vertical height 11.7 inches and a horizontal base 3.6 inches
    c. rectangle with vertical height 7.2 inches and horizontal width 11.7 inches
    d. rectangle with vertical height 11.7 inches and horizontal width 7.2 inches

Find the volume of the prism.

59.



    a. 211.25 cm^3
    b. 31 cm^3
    c. 845 cm^3
    d. 422.5 cm^3

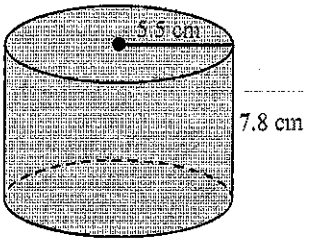
$B = \frac{1}{2}bh$ $V = Bh$

$B = \frac{1}{2}(13)(5)$ $V = (32.5)(13)$

$B = 32.5$ $V = 422.5\ cm^3$

Find the volume of the cylinder.

60.



    a. about 134.77 cm^3
    b. about 269.55 cm^3
    c. about 1482.52 cm^3
    d. about 741.26 cm^3

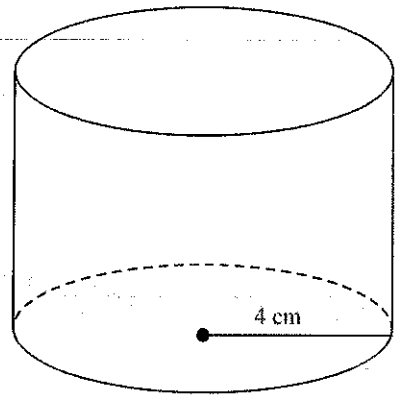
$B = \pi r^2$ $V = Bh$

$B = \pi(5.5)^2$ $V = 95.03(7.8)$

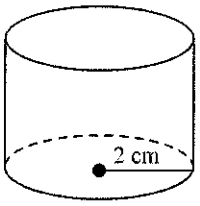
$B = 95.03$ $V = 741.23\ cm^3$

Name: _____ ID: A

61. Cylinder X and Cylinder Y are similar. The volume of Cylinder Y is 89 cm^3. Find the volume of Cylinder X.



Cylinder X



Cylinder Y

V=89

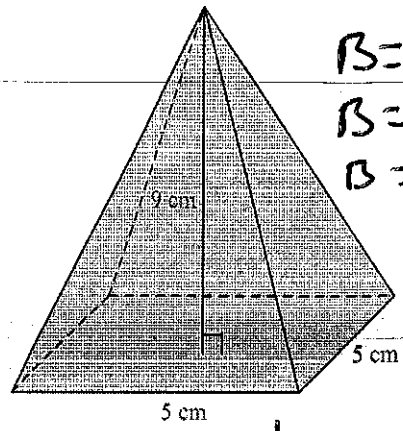
a. 45 cm^3
b. 712 cm^3
c. 178 cm^3
d. 356 cm^3

$\frac{4}{2}=2 \quad 2^3=8$

$89(8)=712\ cm^3$

Find the volume of the pyramid.

62.

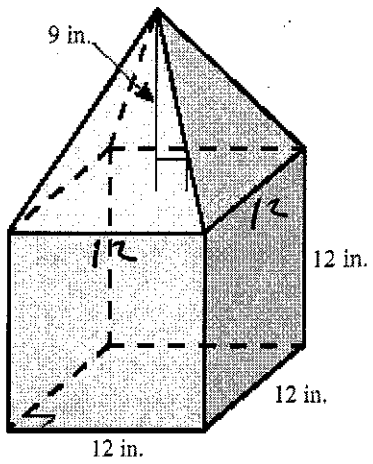


$B=lw$
$B=5(5)$
$B=25$

a. 225 cm^3
b. 15 cm^3
c. 75 cm^3
d. 112.5 cm^3

$V=\frac{1}{3}Bh$
$V=\frac{1}{3}(25)(9)$
$V=75\ cm^3$

63. Find the volume of the composite solid.



a. 2376 $in.^3$
b. 6480 $in.^3$
c. 2160 $in.^3$
d. 1728 $in.^3$

Cube
$V=lwh$
$V=12(12)(12)$
$V=1728$

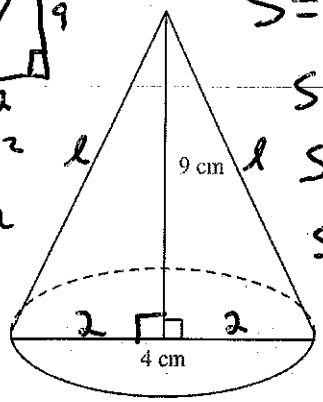
Pyramid
$B=12(12)$
$B=144$
$V=\frac{1}{3}Bh$
$V=\frac{1}{3}(144)(9)$
$V=432$

$1728+432=2160$

Name: _____ ID: A

Find the surface area of the cone.

64.



$S = \pi r^2 + \pi r \ell$

$S = \pi(2)^2 + \pi(2)(9.22)$

$S = 4\pi + 18.44\pi$

$S = 22.44\pi$

$S = 70.49$

$2^2 + 9^2 = \ell^2$

$4 + 81 = \ell^2$

$85 = \ell^2$

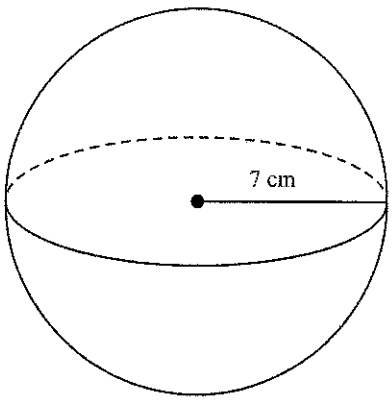
$\sqrt{85} = \sqrt{\ell^2}$

$9.22 = \ell$

a. about 163.36 cm^2
b. about 70.49 cm^2
c. about 140.99 cm^2
d. about 150.8 cm^2

Find the surface area of the sphere.

65.



a. about 196 cm^2
b. about 1436.76 cm^2
c. about 179.59 cm^2
d. about 615.75 cm^2

$S = 4\pi r^2$

$S = 4\pi(7)^2$

$S = 4\pi(49)$

$S = 196\pi$

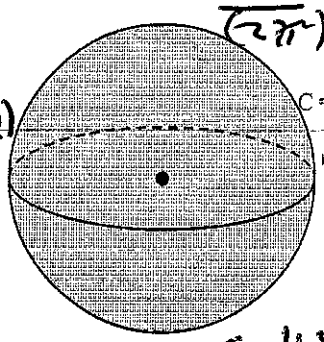
$S = 615.8$

66.

$C = 2\pi r$

$\frac{19\pi}{(2\pi)} = \frac{2\pi r}{2\pi}$

$9.5 = r$



$S = 4\pi r^2$

$S = 4\pi(9.5)^2$

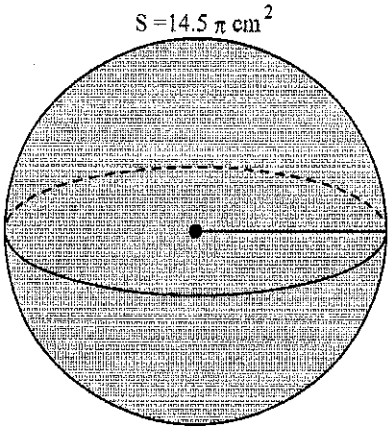
$S = 4\pi(90.25)$

$S = 361\pi$

$S = 1134.11$

a. about 283.53 cm^2
b. about 1134.11 cm^2
c. about 3591.36 cm^2
d. about 4536.46 cm^2

67. Find the radius of the sphere.



$S = 4\pi r^2$

$\frac{14.5\pi}{(4\pi)} = \frac{4\pi r^2}{4\pi}$

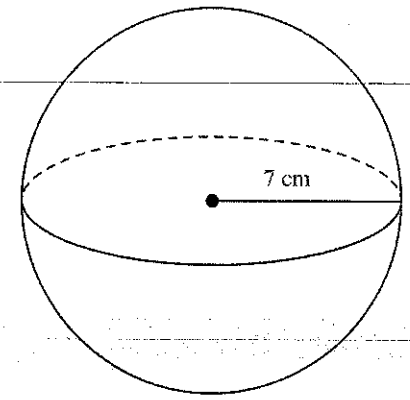
$3.625 = r^2$

$\sqrt{3.625} = \sqrt{r^2}$

$1.9 = r$

a. about 2.86 cm
b. about 3.63 cm
c. about 1.21 cm
d. about 1.9 cm

68. A snowball has a radius of 7 centimeters. What is the volume?



$V = \frac{4}{3}\pi r^3$

$V = \frac{4}{3}\pi (7)^3$

$V = \frac{4}{3}\pi (343)$

$V = \frac{1372}{3}\pi$

$V = 457.33\pi$

$V = 1436.9$

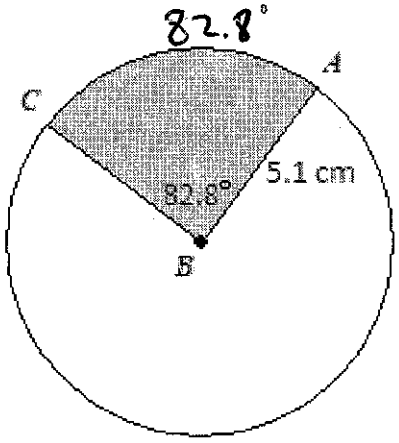
a. about 538.78 cm^3
b. about 1436.76 cm^3
c. about 615.75 cm^3
d. about 196 cm^3

Multiple Response

Identify one or more choices that best complete the statement or answer the question.

$Area_{sector} = \frac{m\widehat{AC}}{360} \cdot \pi r^2$

69. What is the area of the shaded region formed by $\angle ABC$?



$Area_{ABC} = \frac{82.8}{360} \cdot \pi (5.1)^2$

$= .23\pi (26.01)$

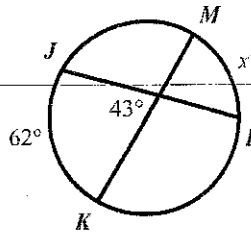
$= 18.79$

a. 81.7 cm^2
b. 26.3 cm^2
c. 18.79 cm^2
d. 22.3 cm^2

Name: _____ ID: A

Numeric Response

70. $(2)43 = \frac{x+62}{2}(2)$



$86 = x + 62$

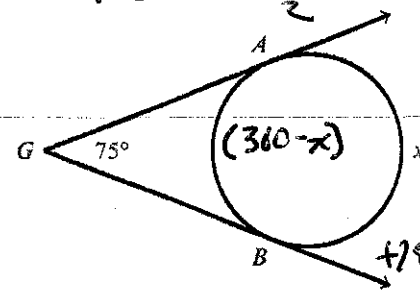
$-62 \quad -62$

$24 = x$

71. $75 = \frac{x-(360-x)}{2}$

$75 = \frac{x-360+x}{2}$

$75 = \frac{2x-360}{2}$



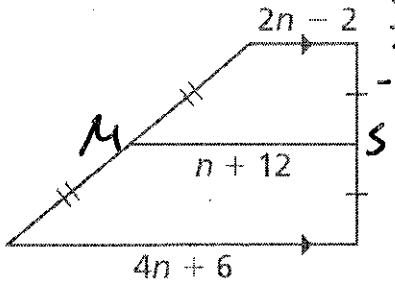
$95 = x - 180$

$+180 \quad +180$

$255 = x$

Short Answer $M5 = \frac{b_1+b_2}{2} \rightarrow 2M5 = b_1+b_2$

72.



$2(n+12) = 6n+4$

$2n+24 = 6n+4$

$-2n \quad -2n$

$24 = 4n+4$

$-4 \quad -4$

$\frac{20}{4} = \frac{4n}{4}$

$5 = n$

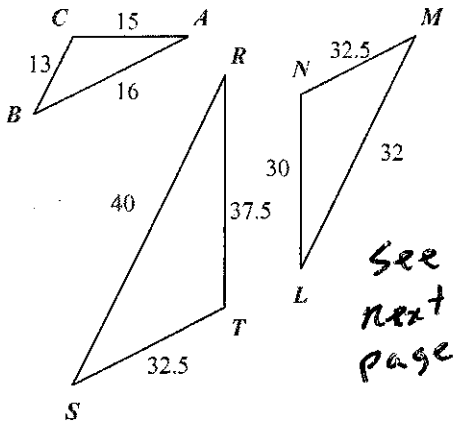
$2n-2$

$+4n+6$

$6n+4$

A. 5 B. 4 C. 16 D. 17

73. Determine whether $\triangle RST$ or $\triangle LMN$ is similar to $\triangle ABC$.



See next page

A. $\triangle LMN \sim \triangle ABC$

B. $\triangle RST \sim \triangle ABC$

C. Both triangles are similar to $\triangle ABC$

D. Neither triangle is similar to $\triangle ABC$

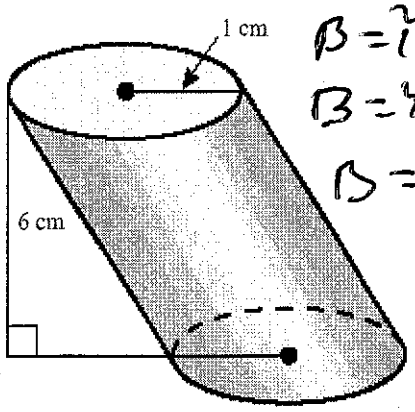
74. A 4-foot tall girl stands 6.5 feet from a lamp post at night. Her shadow from the light is 2.5 feet long. How tall is the lamp post?

A. 17.8 ft B. 15.2 ft C. 14.4 ft D. 13.7 ft

See next page

Find the volume of the cylinder.

75.



$B = \pi r^2$

$B = \pi (1)^2$

$B = \pi$

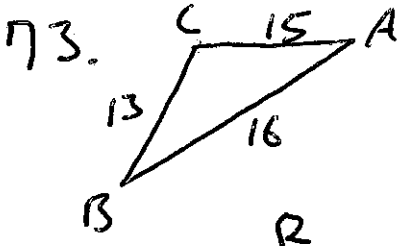
$V = Bh$

$V = \pi(6)$

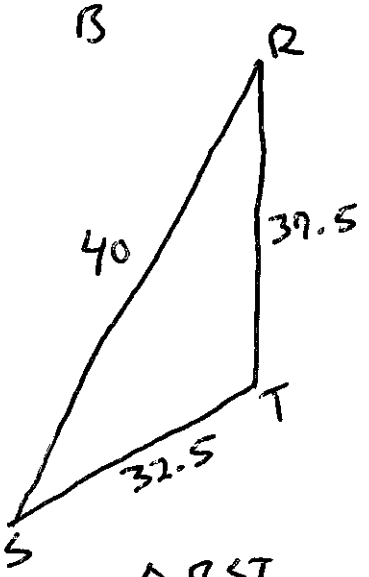
$V = 6\pi$

$V = 19.85$

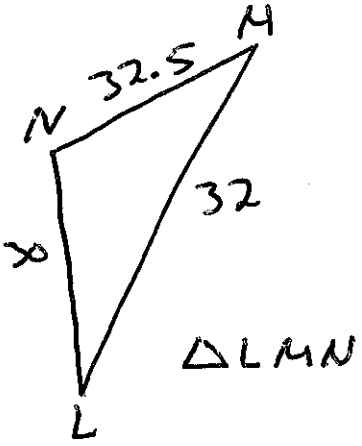
7) 3.



$\triangle ABC$



$\triangle RST$



$\triangle LMN$

$\triangle ABC \sim \triangle RST$

~~AB 40~~
~~RS 16~~

$\frac{RS}{AB} = \frac{40}{16} = 2.5$

$\frac{ST}{BC} = \frac{32.5}{13} = 2.5$

$\frac{RT}{AC} = \frac{39.5}{15} = 2.5$

$\triangle ABC \sim \triangle RST$

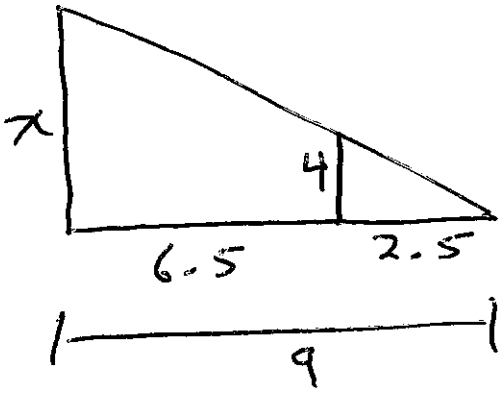
$\triangle ABC \sim \triangle LMN$

$\frac{LM}{AB} = \frac{32}{16} = 2$

$\frac{MN}{BC} = \frac{32.5}{13} = 2.5$

$\triangle ABC \not\sim \triangle LMN$

74.

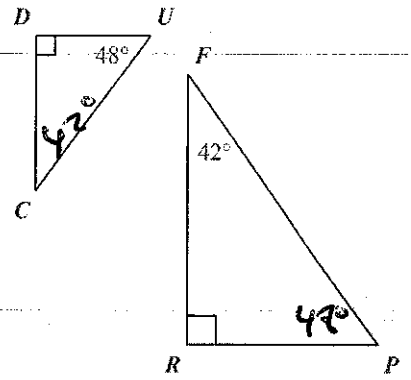


$$\frac{x}{9} = \frac{4}{2.5}$$

$$\frac{2.5x}{2.5} = \frac{36}{2.5}$$

$$x = 14.4$$

76. Determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.



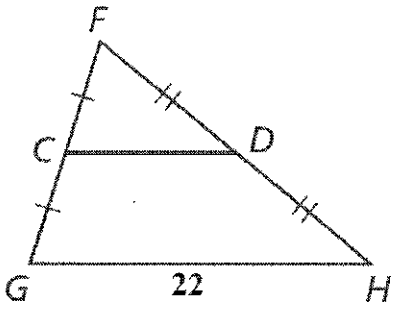
180
- 90
- 48
42

180
- 90
- 42
48

A. Yes, $\triangle DCU \sim \triangle RFP$.
B. No, the triangles are not similar.

Problem

77. *CD*



A. 44 B. 22 C. 11 D. 12

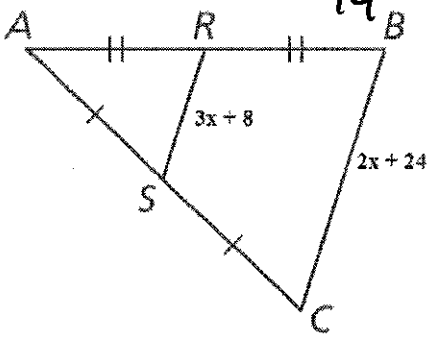
$CD = \frac{1}{2} GH$

$CD = \frac{1}{2}(22)$

$CD = 11$

78. *SR*

3(2)+8
6+8
14



A. 2 B. 14 C. 4 D. 20

$2(RS) = BC$

$2(3x+8) = 2x+24$

$6x+16 = 2x+24$

$-2x \quad -2x$

$4x+16 = 24$

$-16 \quad -16$

$4x = 8$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$